

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Customer Number: 49745
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Jeffrey S. REITER	:	Confirmation Number: 9583
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Application No.: 10/810,638	:	Group Art Unit: 1795
	:	
Filed: March 29, 2004	:	Examiner: MCDONALD, Rodney Glenn
	:	
For: ELECTRICAL BIASING OF GAS INTRODUCTION MEANS OF PLASMA APPARATUS	:	

REPLY BRIEF PURSUANT TO 37 C.F.R. § 41.41

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The following Remarks are respectfully submitted in response to new issues raised in the Examiner's Answer dated March 11, 2009, pursuant to 37 C.F.R. § 41.41.

REMARKS

Initially, it is noted that rejection of claims 7 and 13 under 35 U.S.C. § 112, second paragraph listed on page 3 of the Examiner's Answer has been withdrawn, as noted by the Examiner on page 10 of the Examiner's Answer.

In the Response to Argument section of the Examiner's Answer on pages 11, 12, and 15, the Examiner asserted that Maeda et al., Ando et al., and Zejda are all directed to providing gases to chambers to form plasmas in order to deposit thin films. The configuration of the devices of Maeda et al., Ando et al., and Zejda, however, are very different from each other. Ando et al.

and Zejda are directed to sputtering apparatuses and processes, while Maeda et al. is directed to a chemical vapor deposition apparatus and method. The sputtering apparatuses and methods of Ando et al. and Zejda are very different, and they are even further different from the CVD apparatus and method of Maeda et al. Modifying the Zejda apparatus into the Ando et al. and Maeda et al. configurations would significantly alter the functionality of the Zejda apparatus. For example, in Zejda the cathodes (6, 7) face the substrate (11), while as shown in Fig. 7, the targets (13) of Ando et al. do not face the substrate and a shutter (17) is between the anode (71) with the substrate (70) and the cathode. Further, the Maeda et al. apparatus, because it is directed to CVD, does not have targets. It is not seen how Zejda could be combined with Ando et al. and Maeda et al. and still retain the benefits and features of Zejda. For example, if Zejda is combined with Ando et al. to provide the pair of cathode/target assemblies and injecting a gas into the space between the pair of cathode/target assemblies, the cathode/target assemblies would directly face the substrate and the benefits of the shutter would be lost. Further, because Maeda et al. is directed to CVD the gas introduced via the gas injectors and the gas injectors themselves, perform completely different functions than the gas and injectors in Zejda and Ando et al. In a CVD process, such as Maeda et al., the gas forms the material to be deposited on the substrate, while in a sputter process, such as Ando et al. and Zejda, the gas is used to knock the atoms, to be deposited on the substrate, off of a target.

On pages 12 and 15, the Examiner maintained that one would have been motivated to modify Zejda because Ando et al. teach biasing the gas supply means in order to prevent negative ions from bombarding the substrate. However, as explained above, the configurations of the Ando et al. and Zejda apparatuses are so different, it is not seen how Zejda could obtain

the benefits of Ando et al. apparatus, when the configuration of Ando et al. is changed dramatically in order to incorporate it into the Zejda apparatus.

The Examiner averred on pages 13-14 and 16-17 that even though Maeda et al. is directed to CVD it still would have been obvious to combine the teachings of Maeda et al. with Ando et al. and Zejda, which are directed to sputtering. As explained above, in CVD the gas introduced via the gas injectors and the gas injectors themselves perform a completely different function than the gas and injectors in Zejda and Ando et al. In a CVD process, such as Maeda et al., the gas forms the material to be deposited on the substrate, while in a sputter process, such as Ando et al. and Zejda, the gas is used to knock molecules to be deposited on the substrate off of a target. Thus, one of ordinary skill in this art would not expect the configuration of the gas supply means of Maeda et al. to provide the benefits described by Maeda et al. in a sputtering apparatus. In a sputtering apparatus, unlike a CVD apparatus, the gas is not deposited on the substrate. Rather, the gas introduced into a sputtering apparatus is used to knock atoms off of a sputtering target. The atoms knocked off the sputtering target subsequently deposit on the substrate. Thus, one of ordinary skill in this art would have no reason to believe the asserted improved uniformity of a deposited coating of Maeda et al., where the coating is formed from the gas itself, would result in the processes of Ando et al. and Zejda, where the gas is used to knock atoms off a target. There is simply no suggestion or reason for one of ordinary skill in this art to believe that the Maeda et al. configuration would be beneficial in a sputtering apparatus of Ando et al. or Zejda.

Contrary to the Examiner's assertions on pages 13-14 and 17, the asserted combination of Maeda et al., Ando et al., and Zejda is clearly rooted in impermissible hindsight reasoning based on the present disclosure.

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Based upon the arguments submitted supra, and in the Appeal Brief filed December 3, 2008, Appellant respectfully submits that the Examiner's rejections under 35 U.S.C. §103 are not legally viable. Appellants, therefore, respectfully solicit the Honorable Board to reverse the Examiner's rejections of claims 1-8, 11-14, and 16-20 as being obvious as evidenced by Zejda, Maeda et al., and Ando et al.; and claim 17 as being obvious as evidenced by Zejda, Maeda et al., Ando et al., and Suzuki et al.

Respectfully submitted,

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